**CER | Levers & Pulleys Enhancement**

***EXPLANATION & ARGUMENTATION***

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**Background Information**

**Instructional Materials Title:** Levers & Pulleys

**Publication Date:** 2005

**Work Group Participants:** Dusty Broome, Sylvia Christensen, Bradley Clark, Aaron Crow, Jared Detamore, Santosh Devaisa, Andrea Greene, Lily Higgins, B Lippitt, & Donald Maher

**Date Developed:**

**High Leverage Lesson:** Investigation 4 Part 1 & 2 (pg 8-20)

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**Rationale**

· **Why we identified this particular lesson**

**- Connections to NGSS Practices and WA Science Standards**

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***Explanation* Lesson Enhancement**

**Overview**

· **Identification of where within the High Leverage Lesson to insert enhancement**

· **Key instructional strategies and tools needed**

**Part 1: Lesson Modifications to Lead Up to *Explanation* Experience**

Complete Lesson 4 as designed –

The explanation the students write addresses the central theme (tradeoff between effort and distance, decreasing the effort required comes at a cost of moving the effort over a greater distance) throughout the unit of L & P.

Modification: Use the modified Pulley Data table worksheet in place of the one provided with the kit.

**Part 2: *Explanation* Learning Sequence**

1. **Review CER framework**
2. **Review rubric criteria**
3. **Students write Explanation**
4. **Assess student explanations using rubric**

**Part 3-A: Describe Assessment Task**

*Include the* ***question****,* ***evidence*** *students will use, and* ***scientific concepts*** *students will use in their reasoning.*

*Question: What is the relationship between the distance the effort moved and the amount of effort required to lift the load?*

*Evidence: Students will use the evidence collected (distance effort moved & effort required) in the investigation to support their claim.*

*Reasoning: Student identify that there is a relationship and that the opposite*

**Part 3-B: Assessment Rubric**

See Pulley CER Rubric Document

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**Additional Information**

NOTES

· Information that will be useful when teaching this lesson

- Resources that will be useful

- Scaffolds that students will use